Analytics mindset

Digital assets

Overview

This is a five-part case in which students are asked to assume the role of an auditor for Digital Assets Inc., a company that allows its customers to pay invoices in bitcoin, a common cryptocurrency that makes up approximately 50% of the market cap of all cryptocurrencies (as of May 2021).

This case is designed for an introductory or advanced audit course, but also could be used for a data analytics course or any course discussing emerging technologies. The case is designed to be flexible so that it can be implemented in class, as homework or as a student project. However, it is highly recommended to deliver the case in class through a presentation format to offer more robust learning about digital assets and auditing digital assets, as well as to provide a live demonstration of the audit software tool provided, EY Helix Blockchain Analyzer for Public Networks for Students. Presentation slides have been included for this purpose. The slides also include case solutions.

The following is an overview of the presentation and case coverage. See further details later in this guide.

- Case part 1: Blockchain and digital assets basics
- Case part 2:
  - Section 1: Accounting for cryptocurrencies
  - Section 2: Auditor's responsibilities and audit risk assessment
- Case part 3: Understanding public blockchain data
- Case part 4:
  - Section 1: Overview of the EY Blockchain Analyzer tools and using public blockchain data as audit evidence
  - Section 2: Addressing audit risk through use of the EY Helix Blockchain Analyzer for Public Networks
- Case part 5: Audit of Digital Assets Inc.
  - Section 1: Understanding the company's business and bitcoin transactions, your audit tool and your data
  - Section 2: Exploring the EY Helix Blockchain Analyzer for Public Networks for Students
  - Section 3: Testing for completeness and existence

EY has developed a leading-class analytics platform, EY Helix, for use by its Assurance practice to leverage new analytics techniques and technologies to enhance quality and drive efficiency in the audit. EY Helix is a proprietary tool and it is not available for the classroom. However, the EYARC has developed EY Helix Blockchain Analyzer for Public Networks for Students, a simplified tool based on elements of the EY Blockchain Analyzer within the EY Helix platform designed specifically for the

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classroom using TIBCO Spotfire® via the cloud. The tool helps students simulate real-world audit analytics procedures by using similar data, analyses and tools used by professional auditors. This tool has not been designed, nor should it be used, for performing financial statement audits. It should only be used for nonprofit, higher education purposes.

Throughout the case, students will be developing their analytics mindset in an audit context by learning how to:

- Ask the right business questions
- Extract, transform and load relevant data (i.e., the ETL process)
- Apply appropriate data analytics techniques
- Interpret and share results with stakeholders

The following files are provided for this case study:

Case and case solutions:

Analytics_mindset_case_studies_Digital_assets.docx

Analytics_mindset_case_studies_Digital_assets.pdf

Analytics_mindset_case_study_solutions_Digital_assets.docx

Analytics_mindset_case_study_solutions_Digital_assets.pdf

Presentation:

Analytics_mindset_case_studies_Digital_assets_slides.pptx

Analytics_mindset_case_studies_Digital_assets_slides.pdf

Video: The video, available using this link, is included in the presentation and the case and provides an overview of the EY Blockchain Analyzer.

The link is excluded in this version of the user guide. See user guide on EYARC site to obtain the link.

Analytics workbook (audit software tool):

Students are provided with the audit analytics tool, EY Helix Blockchain Analyzer for Public Networks for Students, offered in TIBCO Spotfire®. This tool is accessible via the cloud using this link (also provided in the case study and presentation materials).

It is not necessary to acquire a TIBCO Spotfire® license to complete the case. However, if you are interested in securing licenses and learning resources for yourself and your students for other academic purposes, you can do this through the TIBCO Academic Alliance. See further details following in this guide.

The link is excluded in this version of the user guide. See user guide on EYARC site to obtain the link.

Data set:

The data set is already loaded into the analytics workbook so that no extract, transform and load (ETL) process needs to be performed.

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Advanced preparation

It is recommended that you expose students to the definition and importance of the analytics mindset and related competencies prior to covering this case. The EYARC offers you lecture notes, slides and a competency framework in the *Introduction to the analytics mindset* module.

It is also recommended that the *EYARC Innovation mindset: Intro to blockchain* module be completed prior to completing this case. The EYARC offers you slides and a video. Basic blockchain fundamentals that are important to understand relative to the case are included in the case and presentation slides.

Students are also expected to have an understanding of basic auditing principles.

Analytics tools

Students are provided with the audit analytics tool, EY Helix Blockchain Analyzer for Public Networks for Students, offered by TIBCO Spotfire®. TIBCO Spotfire® allows users to explore and visualize new discoveries in data through immersive dashboards and advanced analytics. Spotfire® analytics delivers capabilities at scale—including predictive analytics, geolocation analytics and streaming analytics.

For academic needs outside of this case, TIBCO provides leading software to facilitate teaching and learning on business applications such as data visualization, data analytics and data science. Educators and institutions can request multiple licenses for use in the classroom, programs, research initiatives or departments. Access a single-use license to meet your academic needs here.

TIBCO's Academic Alliance program provides educators and students with free or low-cost cutting-edge technology to spark learning and innovation in classrooms around the world and to prepare the workforce of tomorrow. Furthermore, the Academic Alliance program provides students and educators with access to self-paced courses, tutorials, certifications and other assets to help them master TIBCO's latest technologies. For more information on how you can transform your classroom experience, check out TIBCO's Academic Alliance program: https://www.tibco.com/academic. Additionally, in the TIBCO folder accompanying these case files, you can find downloadable reference materials.

Data

The data for this case is already loaded into the EY Helix Blockchain Analyzer for Students audit analytics tool. The data includes a real company's cryptocurrency transactions made in bitcoin covering a seven-month period, as well as its cryptocurrency wallet addresses and balances. The data from the EY blockchain node for bitcoin has also been imported into the tool.

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Additional details regarding case and presentation coverage

Case	Topic	Comments
Part 1	Blockchain and digital assts basics	► This part only requires that students read the information provided, and therefore, there are no solutions. ► This content can be easily assigned as prereading for class if you are presenting the case in class.
Part 2	Section 1: Accounting for cryptocurrencies	► This section asks students to identify the classification and measurement of cryptocurrencies (such as bitcoin) under US GAAP. ► For more information, you may refer to the EY Technical Line: A holder's accounting for cryptocurrencies for more background.
	Section 2: Auditor's responsibilities and audit risk assessment	► This section only requires that the students read, and therefore, there are no solutions. ► This section highlights the lack of authoritative guidance for auditing digital assets. It also covers important risk assessment considerations and example audit risks relating to cryptocurrency assets. ► For more information, you may refer to non-authoritative guidance available in the AICPA Practice aid: Accounting for and auditing of digital assets.
Part 3	Understanding public blockchain data	► This part asks students to validate cryptocurrency transactions in the client's wallet based on the public address of the wallet. Students will use a public blockchain explorer, Blockchair, to perform these procedures. ► Ten transactions are provided for students to validate using the explorer. This should take approximately 10 minutes to perform. – You may reduce the number of transactions to test, as desired, since all transaction information is validated by the explorer. – You can choose to demonstrate one transaction live for students. A slide with a visual of the first transaction is provided in the presentation. – Ultimately, the goal is for students to understand which information can be validated by an explorer and how they work. They will also learn that this process is tedious. ► Separately, consider asking students to explore the number of public block explorers available and introduce a discussion with them about how they would know if the explorers are reliable.

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Case	Topic	Comments
Part 4	Section 1: Overview of the EY Blockchain Analyzer tools and using public blockchain data as audit evidence	► This section only requires that students watch a video and read information that is provided, and therefore, there are no solutions. ► This section provides a video about the EY Blockchain Analyzer so students learn about all of the tools offered and their general functionality. ► Students learn about the necessary audit procedures that must be performed to rely on public blockchain data and the networks evaluated by EY through its own node for use in the EY Helix Blockchain Analyzer for Public Networks.
	Section 2: Addressing audit risk through use of the EY Helix Blockchain Analyzer for Public Networks	► Students are asked to revisit the example audit risks and determine which risks can be addressed through the use of the EY Helix Blockchain Analyzer for Public Networks. ► It is important to note that even when the EY Helix Blockchain Analyzer for Public Networks is utilized to address audit risks, other audit procedures beyond the use of the tool typically would be completed to address audit risks.
Part 5	Audit of Digital Assets Inc.	
	Section 1: Understanding the company's cryptocurrency transactions, your audit tool and your data	► Students are introduced to the audit of Digital Assets Inc.'s cryptocurrency portfolio. ► Students will gain an understanding of what questions might typically be asked by an auditor to understand a company's cryptocurrency transactions. Rather than providing these questions, you could ask the students what questions they believe would be important to ask. ► Students will learn about their audit tool, EY Helix Blockchain Analyzer for Public Networks for Students. ► Students will learn about the data that has been provided to them (already loaded into the tool).
	Section 2: Exploring the EY Helix Blockchain Analyzer for Public Networks for Students	► Students will explore the functionality and content of each dashboard provided in their audit tool. ► If covering this in class, you could provide the opportunity various students to each share their screen and articulate their navigation of the tool and any important observations.
	Section 3: Testing for completeness and existence	► Students are asked to perform audit procedures using the tool to test for completeness and existence. ► Note that students might not identify the dashboards and findings in the order presented in the solutions.

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